

Eureka Math *A Story of Units*

Third Grade – Module 7

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Assessment materials based on Eureka Math Version 3.



Module Assessment Overview

Purpose of Assessments

Mid-Module Assessment: These tasks address approximately the **first half** of the module's learning objectives, and provide important information for instruction and for grading.

End-of-Module Assessment: These tasks are based on all standards addressed in order to gauge students' full range of understanding of the **module as a whole**. The End-of-Module assessment should carry more weight than the Mid-Module Assessment in terms of student grades in the appropriate domain.

Administration of Assessments

- Mid- and End-of-Module Assessments are designed to be completed in approximately one class period. However, The tests can be given over multiple days as needed.
- Assessments are designed to be completed independently by students, without assistance.
- These tasks should not be preceded by review of similar problems.

Grading Guidance

The grading scale on Elementary Report Cards has been changed for 2015-2016 and beyond. Please note that **4 now indicates advanced understanding of grade level standards expected at this time of year.**

- 4 – Advanced:** Student demonstrates advanced understanding of grade level standards expected at this time of year.
- 3 – Proficient:** Student demonstrates proficiency with grade level standards expected at this time of year.
- 2 – Basic:** Student demonstrates basic understanding of grade level standards expected at this time of year. Student needs additional support and practice.
- 1 – Below Basic:** Student demonstrates minimal understanding of grade level standards expected at this time of year. Student needs significant support and practice.

Rubrics and Checklists have been updated to reflect this change. Rubrics have been further modified from Eureka Math originals for clarity, accuracy, and alignment to Bethel's grade scale.

General Grading Guidance:

- On the report card, student learning is reported by CCSS domain. The Third Grade CCSS domains are: Operations and Algebraic Thinking, Number and Operations in Base Ten, Number and Operations – Fractions, Measurement and Data, and Geometry.
- Grades in each domain should be based on multiple sources of evidence, including the Mid- and End-of-Module Assessments. The End-of-Module assessment should carry more weight than the Mid-Module Assessment in terms of student grades in the appropriate domain.

Module 7 Grading Guidance:

- This is the last opportunity to teach and assess the standards in Module 7. (See checklist on page 3.)

Updates

We recommend reviewing assessments prior to teaching the module. This will aid in making planning decisions for each lesson. Note: Assessments are available at the back of each module in the teacher binders.

Grade 3 Common Core State Standards Checklist by Module

This grade-level chart provides an at-a-glance view of when each standard is addressed. **Shaded boxes indicate standards that are assessed in Module 7.** Note that standards included in major clusters are followed by an asterisk (*). Please refer to the Curriculum Overview of *A Story of Units* for a curriculum map and detailed grade-level descriptions including a summary of the year, a rationale of the module sequence, and a standards alignment chart.

| CCSS | | GRADE 3 MODULES | | | | | | |
|-------|-----|-----------------|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3.OA | 1* | X | | | | | | |
| | 2* | X | | | | | | |
| | 3* | X | | X | | | | |
| | 4* | X | | X | | | | |
| | 5* | X | | X | | | | |
| | 6* | X | | | | | | |
| | 7* | X | X | X | | | | |
| | 8* | X | | X | | | | X |
| | 9* | | | X | | | | |
| 3.NBT | 1 | | X | | | | | |
| | 2 | | X | | | | | |
| | 3 | | | X | | | | |
| 3.NF | 1* | | | | | X | | |
| | 2a* | | | | | X | | |
| | 2b* | | | | | X | | |
| | 3a* | | | | | X | | |
| | 3b* | | | | | X | | |
| | 3c* | | | | | X | | |
| | 3d* | | | | | X | | |
| 3.MD | 1* | | X | | | | | |
| | 2* | | X | | | | | |
| | 3 | | | | | | X | |
| | 4 | | | | | | X | X |
| | 5a* | | | | X | | | |
| | 5b* | | | | X | | | |
| | 6* | | | | X | | | |
| | 7a* | | | | X | | | |
| | 7b* | | | | X | | | |
| | 7c* | | | | X | | | |
| | 7d* | | | | X | | | |
| | 8 | | | | | | | X |
| 3.G | 1 | | | | | | | X |
| | 2 | | | | | X | | |

Third Grade Module 7: Mid-Module Assessment Task Score Sheet

A Progression of Learning

A Progression of Learning is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left to right. The learning goal for each student is to move to the last step, “Evidence of solid reasoning with a correct answer”. These steps are meant to help teachers and students identify and celebrate what the student **CAN** do now, and what they need to work on next.

Score Key: A Progression of Learning

| | | | |
|---|--|---|--|
| Little or no evidence of reasoning with an incorrect answer. (1 Point) | Evidence of some reasoning with an incorrect answer. (2 Points) | Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points) | Evidence of solid reasoning with a correct answer. (4 Points) |
|---|--|---|--|

| Module 7: Mid-Module Assessment | | | | | | |
|---------------------------------|-----------------------------------|----------------------|----------|-----------|--------|-------|
| Question | Domain | | | Standards | | |
| | Operations and Algebraic Thinking | Measurement and Data | Geometry | 3.OA.8 | 3.MD.8 | 3.G.1 |
| 1 | | | 1 2 3 4 | | | X |
| 2 | | | 1 2 3 4 | | | X |
| 3 | | 1 2 3 4 | | | X | |
| 4 | 1 2 3 4 | | | X | | |
| 5 | | 1 2 3 4 | | | X | |
| 6 | | 1 2 3 4 | | | X | |

| Domain Score | Operations and Algebraic Thinking | | Measurement and Data | | Geometry | |
|--------------|-----------------------------------|--------|----------------------|------------|----------|----------|
| Total Points | | | | | | |
| Level | 4 | 4 pts. | 4 | 11-12 pts. | 4 | 7-8 pts. |
| | 3 | 3 pts. | 3 | 8-10 pts. | 3 | 5-6 pts. |
| | 2 | 2 pts. | 2 | 5-7 pts. | 2 | 3-4 pts. |
| | 1 | 1 pt. | 1 | 3-4 pts. | 1 | 2 pts. |

Notes:

Third Grade Module 7: Mid-Module Assessment Task Score Sheet (continued)

Mid-Module Assessment Task (Topics A–C) Clusters and Standards Addressed

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

- 3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order [Order of Operations].)

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

- 3.MD.8** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Reason with shapes and their attributes.

- 3.G.1** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Third Grade Module 7: Mid-Module Assessment Task Rubric

| A Progression of Learning | | | | |
|---|---|--|---|--|
| Assessment Task Item and Standards Assessed | STEP 1 Little or no evidence of reasoning with an incorrect answer. (1 Point) | STEP 2 Evidence of some reasoning with an incorrect answer. (2 Points) | STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points) | STEP 4 Evidence of solid reasoning with a correct answer. (4 Points) |
| 1 3.G.1 | The student correctly answers 0-1 of the four parts. | The student correctly answers 2 of the four parts. | The student correctly answers 3 of the four parts. | The student correctly answers 4 of the four parts. (See below.) |
| | a. (1) The trapezoid is circled. b. (2) The rhombus and rectangle are crossed out. c. (3) All three shapes are quadrilaterals. (4) Explanation includes that they each have four sides. | | | |
| 2 3.G.1 | Student correctly answers 0-2 of the six parts. | Student correctly answers 3-4 of the six parts. | The student correctly answers 5 of the six parts. | The student correctly answers 6 of the six parts. (See below.) |
| | a. (1) Draws and (2) names a shape with four right angles (e.g., a rectangle). b. (3) Draws and (4) labels side lengths of a four-sided shape with no right angles and no equal sides (e.g., a trapezoid). c. (5) Draws and (6) labels side lengths of a rhombus using triangles (may use more than two triangles). | | | |
| 3 3.MD.8 | Student correctly answers 0-1 of the four parts. | Student correctly answers 2 of the four parts. | Student correctly answers 3 of the four parts. | Student correctly answers 4 of the four parts. (See below.) |
| | (1) Mr. Cooper uses 24 meters of fence. (2) Rectangular picture of the stall with side lengths appropriately labeled (3) Equation like $5 + 5 + 7 + 7$ or $10 + 14$ (4) Answers labeled correctly | | | |
| 4 3.OA.8 | The student correctly answers 0-1 of the five parts. | The student correctly answers 2-3 of the five parts. | The student correctly answers 4 of the five parts. | The student correctly answers 5 of the five parts. (See below.) |
| | a. (1) Student answers 42 feet of wood trim. (2) Student work demonstrates a strategy appropriate to the problem (e.g., $10 + 10 + 8 + 8 + 3 + 3$.) b. (3) Student answers 24 more feet of wood trim are needed for the bedroom than for the closet. (4) Student writes an appropriate equation(s) including a letter for the unknown (e.g., $8 + 10 + 10 + 5 = 33$, $33 - (3 + 3) = w$.) (5) Answers labeled correctly | | | |



Assessment Recommendations for Eureka Math A Story of Units
Teaching and Learning Department - Bethel School District

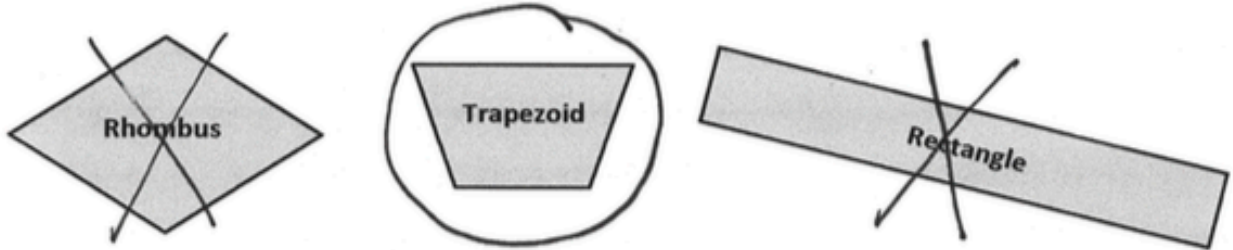
| A Progression of Learning | | | | |
|---|--|--|---|--|
| Assessment Task Item and Standards Assessed | STEP 1 Little or no evidence of reasoning with an incorrect answer. (1 Point) | STEP 2 Evidence of some reasoning with an incorrect answer. (2 Points) | STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points) | STEP 4 Evidence of solid reasoning with a correct answer. (4 Points) |
| 5 3.MD.8 | Work demonstrates an inappropriate strategy for the problem and the answer is incorrect. | Work demonstrates a strategy appropriate to the problem but several calculation errors result in an incorrect answer. OR Answer is correct but there is no work. | <ul style="list-style-type: none"> • Answer may be incorrect due to a calculation error; • Work demonstrates a strategy appropriate to the problem. | <ul style="list-style-type: none"> • Student correctly answers that the perimeter is 52 inches. • Student work demonstrates a strategy appropriate to the problem (e.g., student may use a combination of multiplication and addition to calculate the perimeter). |
| 6 3.MD.8 | Work demonstrates an inappropriate strategy for the problem and the answer is incorrect. | Work demonstrates a strategy appropriate to the problem but several calculation errors result in an incorrect answer. OR Answer is correct but there is no work. | <ul style="list-style-type: none"> • Answer may be incorrect due to a calculation error. • Student work demonstrates a strategy appropriate to the problem. | <ul style="list-style-type: none"> • Student answers that Mrs. Gomez needs to build 85 feet of fence. • Student work demonstrates a strategy appropriate to the problem (e.g., $10 + 15 = 25$ and $25 + 32 + 15 + 10 = 85$ feet, or, $25 + 50 + 10 = 85$ feet). |

Third Grade Module 7: Mid-Module Assessment Task Key

Name Gina

Date _____

1. Three shapes are shown below.
 - a. Circle the shape(s) with only one pair of parallel sides.
 - b. Cross out the shape(s) with two pairs of parallel sides.



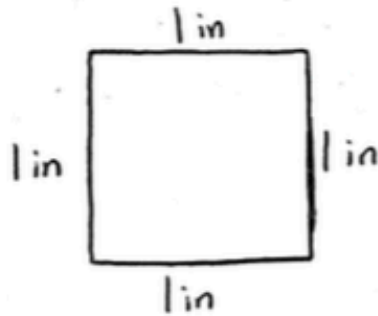
- c. Which of the three shapes are quadrilaterals? Explain how you know.

All three shapes are quadrilaterals because they each have four sides.

Third Grade Module 7: Mid-Module Assessment Task Key (continued)

2. Use your ruler and right angle tool to draw the following shapes.

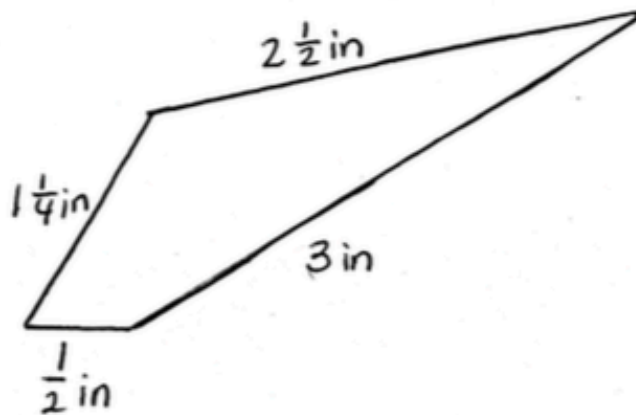
a. Draw and name a shape with four right angles.



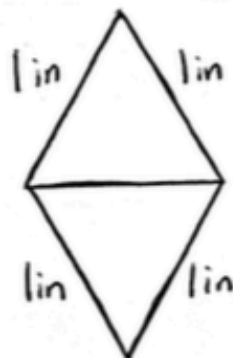
4 right angles and 4 equal sides

This is a square.

b. Draw a four-sided shape with no right angles and no equal sides. Label the side lengths.

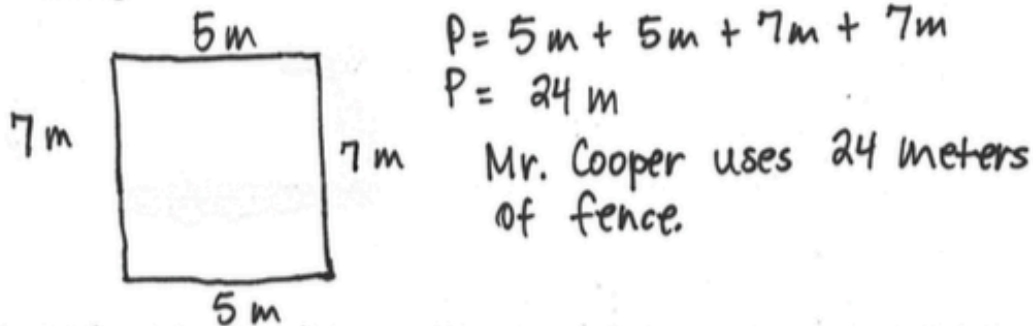


c. Draw triangles to create a rhombus. Label the side lengths.

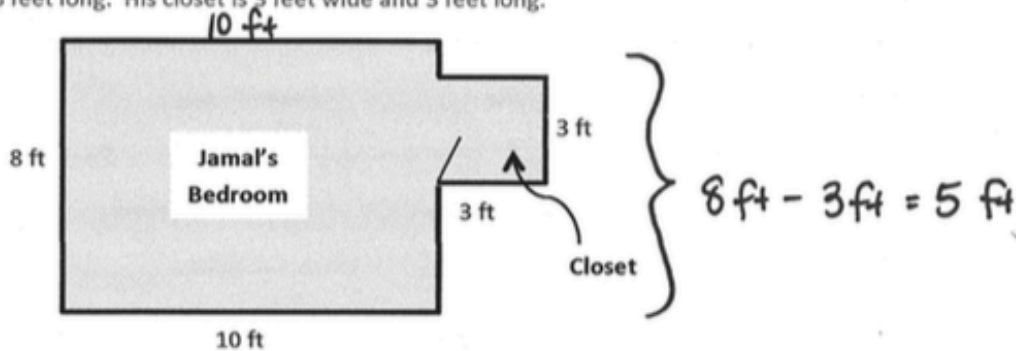


Third Grade Module 7: Mid-Module Assessment Task Key (continued)

3. Mr. Cooper builds a fence to make a rectangular horse stall. The stall is 5 meters long and 7 meters wide. How many meters of fence does Mr. Cooper use? Draw a picture and write an equation to show your thinking.



4. Jamal wants to put wood trim around his rectangular bedroom and square closet. His bedroom is 10 feet wide and 8 feet long. His closet is 3 feet wide and 3 feet long.



- a. Wood trim is sold by the foot. How many feet of wood trim does Jamal need to go around his bedroom and closet? Show your work.

$$P = 8ft + 10ft + 10ft + 8ft + 3ft + 3ft$$

$P = 16ft + 20ft + 6ft$
 $P = 42ft$

Jamal needs 42 feet of wood trim.

- b. How much more wood trim does Jamal need for his bedroom than his closet? Write and solve an equation. Use a letter to represent the unknown.

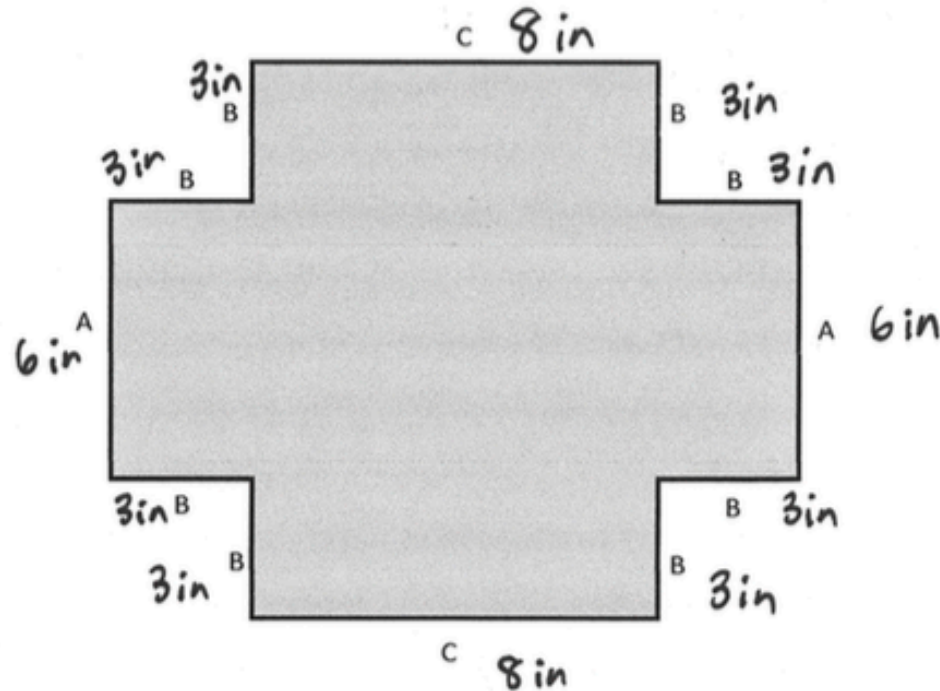
Bedroom: $8ft + 10ft + 10ft + 5ft = 33ft$
 Closet: $3ft + 3ft + 3ft = 9ft$
 $33ft - 9ft = W$ $W = 24ft$

He needs 24 more feet for the bedroom.

Third Grade Module 7: Mid-Module Assessment Task Key (continued)

5. The figure below is composed of rectangles. Use the picture and the descriptions to find the perimeter of the shape. Show your work.

- Each side labeled with A is 6 inches.
- Each side labeled with B is 3 inches.
- Each side labeled with C is 8 inches.



$$8 \text{ B's} = 8 \times 3 \text{ in} = 24 \text{ inches}$$

$$2 \text{ C's} = 2 \times 8 \text{ in} = 16 \text{ inches}$$

$$2 \text{ A's} = 2 \times 6 \text{ in} = 12 \text{ inches}$$

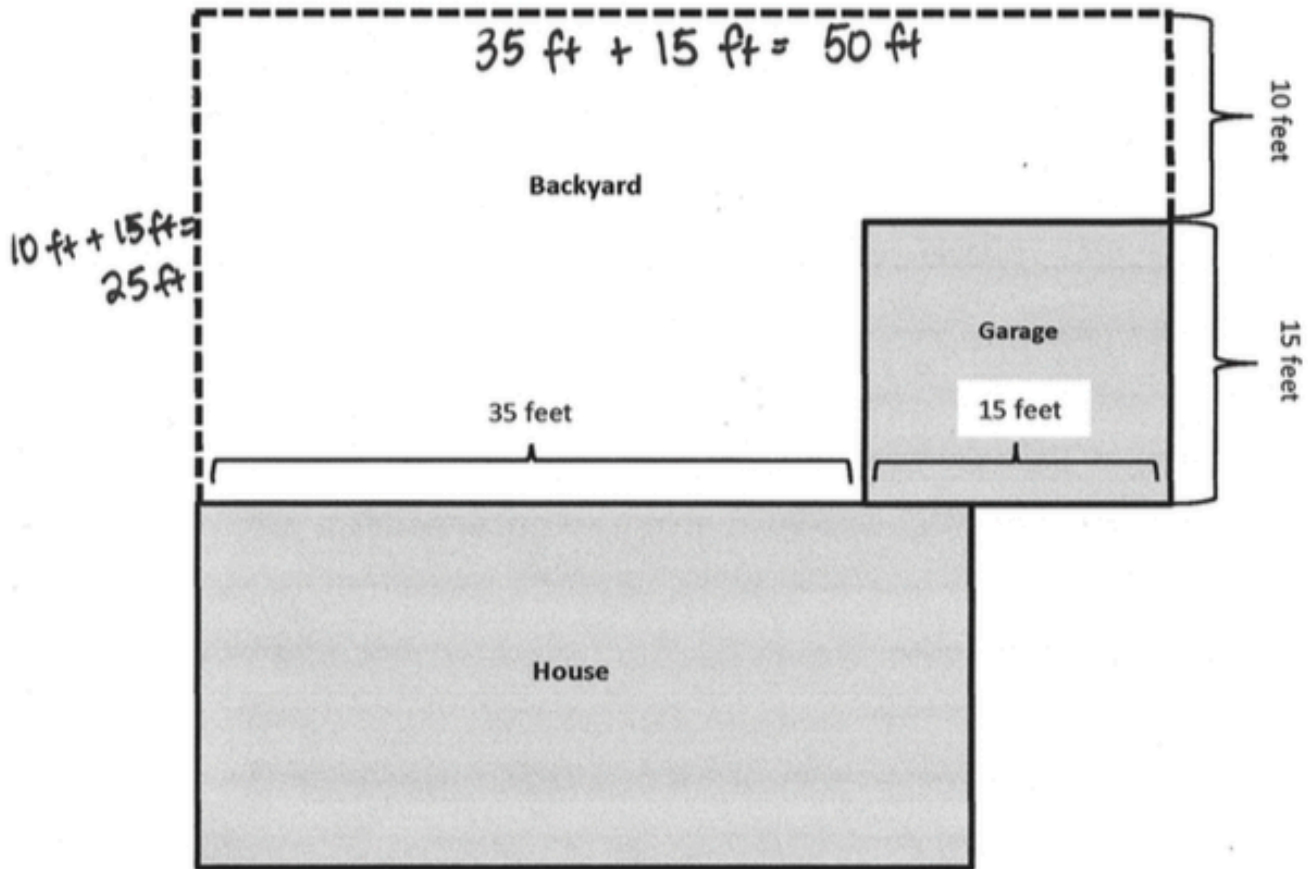
$$P = 24 \text{ in} + 16 \text{ in} + 12 \text{ in}$$

$$P = 52 \text{ in}$$

The perimeter is 52 inches.

Third Grade Module 7: Mid-Module Assessment Task Key (continued)

6. Mrs. Gomez builds a fence around her backyard. Her plan shows the fence as a dotted line below.



Together, the garage and backyard make a rectangle. The fence goes only where there is a dotted line. How many feet of fence does Mrs. Gomez need to build? Show your work.

$$25 \text{ ft} + 50 \text{ ft} + 10 \text{ ft} = 85 \text{ ft}$$

Handwritten calculation showing the perimeter of the fenced area:

$25 \text{ ft} + 50 \text{ ft} + 10 \text{ ft} = 85 \text{ ft}$

The 50 ft and 10 ft are grouped together with a bracket and labeled 60 ft.

Mrs. Gomez needs to build 85 feet of fence.

Third Grade Module 7: End-of-Module Assessment Task Score Sheet

A Progression of Learning

A Progression of Learning is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left to right. The learning goal for each student is to move to the last step, “Evidence of solid reasoning with a correct answer”. These steps are meant to help teachers and students identify and celebrate what the student **CAN** do now, and what they need to work on next.

Score Key: A Progression of Learning

| | | | |
|---|---|---|--|
| Little or no evidence of reasoning with an incorrect answer. (1 Point) | Evidence of some reasoning an incorrect answer. (2 Points) | Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points) | Evidence of solid reasoning with a correct answer. (4 Points) |
|---|---|---|--|

| | Module 7: End-of-Module Assessment | | | | | | | | | | | |
|----------|------------------------------------|---|----------------------|---|-----------|---|--------|--------|--------|-------|---|---|
| | Domain | | | | Standards | | | | | | | |
| Question | Operations and Algebraic Thinking | | Measurement and Data | | Geometry | | 3.OA.8 | 3.MD.4 | 3.MD.8 | 3.G.1 | | |
| 1 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | X | | X | X |
| 2 | | | | | 1 | 2 | 3 | 4 | | | X | |
| 3 | | | | | 1 | 2 | 3 | 4 | | | X | |
| 4 | | | | | 1 | 2 | 3 | 4 | | X | X | |
| 5 | | | | | 1 | 2 | 3 | 4 | | | X | X |

| Domain Score | Operations and Algebraic Thinking | | Measurement and Data | | Geometry | |
|--------------|-----------------------------------|--------|----------------------|------------|----------|----------|
| Total Points | | | | | | |
| Level | 4 | 4 pts. | 4 | 18-20 pts. | 4 | 7-8 pts. |
| | 3 | 3 pts. | 3 | 13-17 pts. | 3 | 5-6 pts. |
| | 2 | 2 pts. | 2 | 8-12 pts. | 2 | 3-4 pts. |
| | 1 | 1 pt. | 1 | 5-7 pts. | 1 | 2 pts. |

Notes:

Third Grade Module 7: End-of-Module Assessment Task Score Sheet (continued)

End-of-Module Assessment Task (Topics A–E) Clusters and Standards Addressed

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

- 3.OA.8** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order [Order of Operations].)

Represent and interpret data.

- 3.MD.4** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

- 3.MD.8** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.

Reason with shapes and their attributes.

- 3.G.1** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Third Grade Module 7: End-of-Module Assessment Task Rubric

| A Progression of Learning | | | | |
|---|--|---|---|---|
| Assessment Task Item and Standards Assessed | STEP 1 Little or no evidence of reasoning with an incorrect answer. (1 Point) | STEP 2 Evidence of some reasoning with an incorrect answer. (2 Points) | STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points) | STEP 4 Evidence of solid reasoning with a correct answer. (4 Points) |
| 1 3.G.1 3.MD.8 3.OA.8 | Student correctly answers 0-2 of the seven parts. | Student correctly answers 3-4 of the seven parts. | Student correctly answers 5-6 of the seven parts. | Student correctly answers 7 of the seven parts. (See below) |
| | a. (1) Draws and (2) labels a diagram with a letter to represent the unknown length. b. (3) Finds 34 feet and (4) shows with equations (e.g., $16 + 16 + 34 + b = 100$, $100 - 66 = 34$ ft.) or written explanation (e.g., the shape is a rectangle because opposite sides of a rectangle are equal, so the missing side must be 34 feet) how they know the missing side length. c. (5) Answers 81 sq. ft. (6) Uses a letter to represent the unknown (area) (7) Work demonstrates strategy or reasoning appropriate to the problem (e.g., all four sides of a square are equal, so the sides can be found using $36 \div 4 = 9$. $9 \times 9 = 81$). | | | |
| 2 3.MD.8 | Student correctly answers 6 cm as the missing side length for 0-1 of the five shapes. | Student correctly answers 6 cm as the missing side length for 2-3 of the five shapes. | Student correctly answers 6 cm as the missing side length for 4 of the five shapes. | Student correctly answers 6 cm as the missing side length for 5 of the five shapes. |
| 3 3.MD.8 | Student correctly answers 0-1 of the six parts. | Student correctly answers 2-3 of the six parts. | Student correctly answers 4-5 of the six parts. | Student correctly answers 6 of the six parts. (See below.) |
| | a. (1, 2) Finds 14 sq cm as the area of each shape, and (3, 4) perimeters of 20 cm and 18 cm. b. (5) Identifies that John is not correct. (6) Explanation includes the argument that area is based on total square units and stays constant as long as the total stays the same, but when square units are rearranged more sides may be exposed, which can change the perimeter. | | | |
| 4 3.MD.4 3.MD.8 | Student correctly answers 0-1 of the four parts. | Student correctly answers 2 of the four parts. | Student correctly answers 3 of the four parts. | Student correctly answers 4 of the four parts. (See below.) |
| | a. (1) Finds all the possible perimeters as 24 cm, 26 cm, 30 cm, 40 cm, and 74 cm. (2) Explanation is appropriate to the problem (e.g., includes finding the factors of 36 and then drawing rectangles with corresponding perimeters and referencing with the chart). b. (3) Adds 24, 26, and 74 to the line plot. (4) Correctly plots the number of students on the line plot. | | | |
| 5 3.G.1 3.MD.8 | Student correctly answers 0-1 of the four parts. | Student correctly answers 2 of the four parts. | Student correctly answers 3 of the four parts. | Student correctly answers 4 of the four parts. (See below.) |
| | a. (1) Answers 4 cm. (2) Explanation includes that a square has four equal sides. b. (3) Draws a figure with a perimeter of 32 centimeters, e.g., draws three connected squares in a row. (There are many different ways it can be drawn.) | | | |

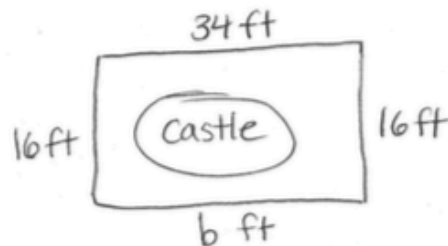
A Progression of Learning

- c. (4) Writes $8 \times 4 = 32$, $4 \times 8 = 32$, $32 \div 4 = 8$ or a repeated addition sentence.

Third Grade Module 7: End-of-Module Assessment Task Key

Name Gina Date _____

1. Katy and Jane construct a four-sided wall to surround their castle. The wall has a perimeter of 100 feet. One side measures 16 feet. A different side measures 16 feet. A third side measures 34 feet.
- a. Draw and label a diagram of the wall. Use a letter to represent the unknown side length.



- b. What is the unknown side length? Show your work, or explain how you know.

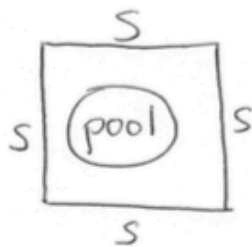
$$34 + 16 + 16 + b = 100$$

Handwritten work showing the equation above. Brackets are drawn under 16 and 16, with an arrow pointing to 32. Another bracket is drawn under 32 and b, with an arrow pointing to 66.

$$100 - 66 = 34$$

The unknown side length is 34 feet.

- c. Katy and Jane build a square fence around the castle's pool. It has a perimeter of 36 feet. What is the area that the fence encloses? Use a letter to represent the unknown. Show your work.



$$P = 36 \text{ ft}$$

All 4 sides are equal, so

$$36 \div 4 = S$$

$$S = 9$$

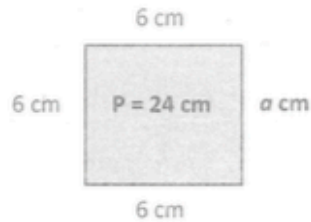
$$\text{Area} = 9 \text{ ft} \times 9 \text{ ft}$$

$$= 81 \text{ sq ft}$$

The area inside the fence is 81 square feet.

Third Grade Module 7: End-of-Module Assessment Task Key (continued)

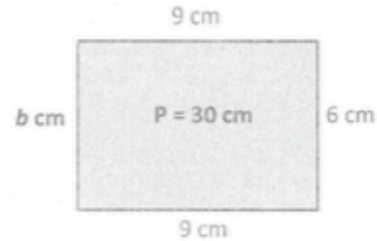
2. Each shape has a missing side length labeled with a letter. The perimeter of the shape is labeled inside. Find the unknown side length for each shape.



$$6 + 6 + 6 = 18$$

$$18 + a = 24$$

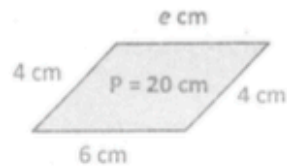
$$a = 6$$



$$9 + 9 + 6 = 24$$
$$\quad \swarrow \quad \searrow$$
$$\quad 18$$

$$24 + b = 30$$

$$b = 6$$



$$4 + 6 + 4 = 14$$

$$\quad \swarrow \quad \searrow$$
$$\quad 10$$

$$14 + e = 20$$

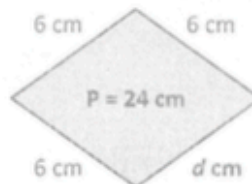
$$e = 6$$



$$7 + 7 + 2 = 16$$
$$\quad \swarrow \quad \searrow$$
$$\quad 14$$

$$16 + c = 22$$

$$c = 6$$

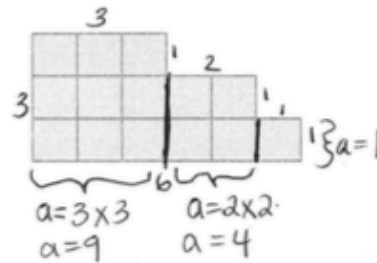
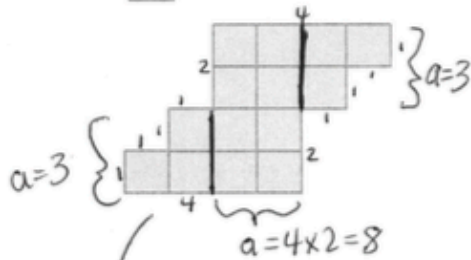


$$6 \times 4 = 24, \text{ so}$$

$$d = 6$$

Third Grade Module 7: End-of-Module Assessment Task Key (continued)

3. Suppose each  is 1 square centimeter.



a. Find the area and perimeter of each shape.

$$A = 8 \text{ sq cm} + 3 \text{ sq cm} + 3 \text{ sq cm}$$

$$A = 14 \text{ sq cm}$$

$$P = 4 \text{ cm} + 4 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 8 \text{ cm}$$

$$P = 20 \text{ cm}$$

$$A = 9 \text{ sq cm} + 4 \text{ sq cm} + 1 \text{ sq cm}$$

$$A = 14 \text{ sq cm}$$

$$P = 3 \text{ cm} + 3 \text{ cm} + 6 \text{ cm} + 2 \text{ cm} + 4 \text{ cm}$$

$$\begin{array}{cc} \swarrow & \searrow \\ 6 \text{ cm} & 6 \text{ cm} \end{array}$$

$$P = 3 \times 6 \text{ cm}$$

$$P = 18 \text{ cm}$$

b. John says, "If two shapes have the same area, they must also have the same perimeter." Is John correct? Use your answer from Part (a) above to explain why or why not.

John is not correct. The 2 shapes in Part (a) have the same areas but not the same perimeters. The reason is that the shapes are made of the same number of squares (area), but they got rearranged for each shape. Sometimes when you rearrange, you might have more or less sides showing, and that changes the perimeter.

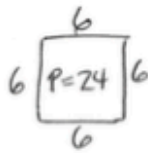
Third Grade Module 7: End-of-Module Assessment Task Key (continued)

4. Mr. Jackson's class finds all possible perimeters for a rectangle composed of 36 centimeter tiles. The chart below shows how many students found each rectangle.

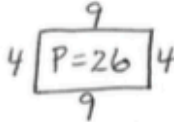
| Perimeter | Number of Students |
|-----------|--------------------|
| 24 cm ✓ | 6 |
| 26 cm ✓ | 9 |
| 30 cm ✓ | 5 |
| 40 cm ✓ | 7 |
| 74 cm ✓ | 4 |

- a. Check the students' work. Did they find all the possible perimeters? How do you know?

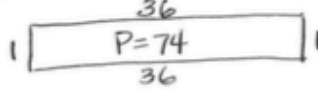
$$6 \times 6 = 36$$



$$4 \times 9 = 36$$



$$1 \times 36 = 36$$

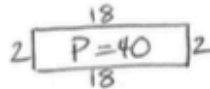


$$6 \times 6 = 36$$

$$(2 \times 3) \times 6 = 36$$

$$2 \times (3 \times 6) = 36$$

$$2 \times 18 = 36$$

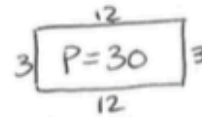


$$6 \times 6 = 36$$

$$(3 \times 2) \times 6 = 36$$

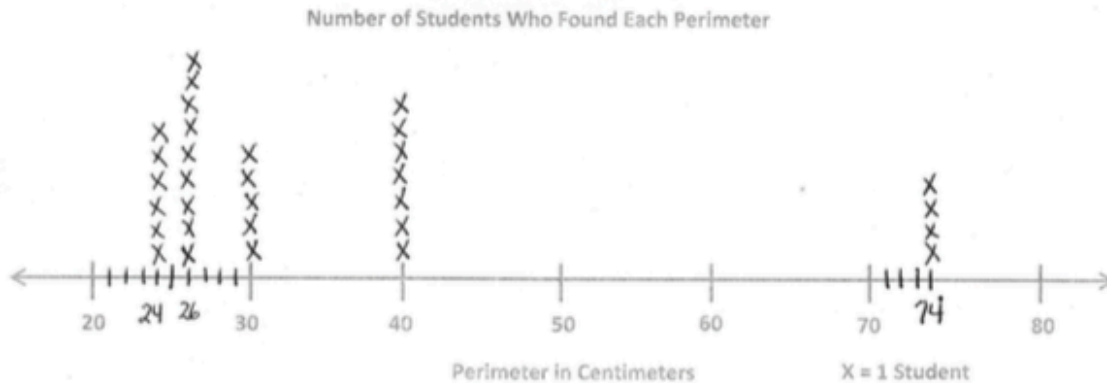
$$3 \times (2 \times 6) = 36$$

$$3 \times 12 = 36$$



Yes, they found all the perimeters. I know because I used a fact I knew to help me find other side lengths. Then I found the perimeters and checked with the chart.

- b. Use the chart. Estimate to construct a line plot of how many students found each perimeter.



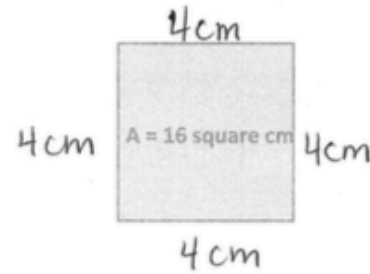
Third Grade Module 7: End-of-Module Assessment Task Key (continued)

5. The square to the right has an area of 16 square centimeters.

a. What is the length of each side? Explain how you know.

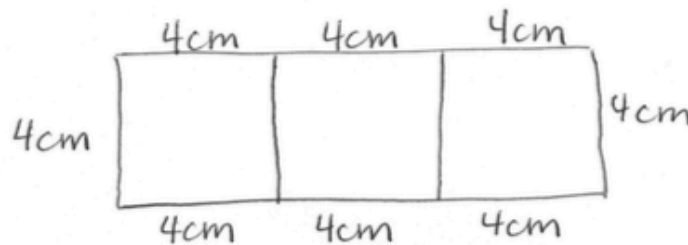
$$\underline{4} \times \underline{4} = 16$$

The length of each side is 4cm.
Since it's a square all the sides are equal, so I thought about a number that equals 16 when it's multiplied by itself. I know that's 4.



- b. Draw copies of the square above to make a figure with a perimeter of 32 centimeters.

$$32 \div 4 = 8$$



- c. Write a number sentence to show that your figure has the correct perimeter of 32 centimeters.

$$8 \times 4\text{cm} = 32\text{cm}$$